# GAS JOURNAL

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## GAS RESEARCH IN THREE COUNTRIES

FROM time to time comparisons have been made between the effort put into research by the gas industry at home and in other countries, particularly the United States. The report of the American Gas Association presented to the International Gas Union stated that a billion dollars a year was being spent there on research, but a question addressed to Mr. R. W. Hendee elicited the much more modest figure of 600,000 dollars (say £130,000) being actually spent on research as a part of the Association's promotion, advertising, and research programme, or P.A.R. This then appears to be the figure to compare with the effective annual expenditure of £60,000 by our own Gas Research Board. The two figures are not out of proportion to the respective revenues of the industry in the two countries. In both countries it is difficult to estimate the total expenditure including that by constructional companies undertaken for the advancement and improvement of plant and appliances.

Three countries, France, the U.S.A., and Great Britain, described their research organisations and programmes to the International Gas Union. Each, naturally, showed the differing conditions in the several countries. In the United States of America it is natural that the organisation should be relatively loose, organised carefully, but not so tightly as to throttle full intellectual and imaginative freedom. The P.A.R. Committee is the controlling body working with funds subscribed by the gas companies. A General Research Planning Commitee divides the work among a number of sub-committees, dealing with production, technical research, domestic, industrial and commercial gas research, assisted by technical advisory and project committees. The work itself is divided into definite projects of which 72 have been assigned in the last five years—assigned, that is, each to a definite laboratory or technical institution. It is claimed that the research programme is integrated and co-ordinated to a degree seldom achieved by any industry.

In France gas research has developed historically out of the individual work of two great scientists, Reynault and Ste Claire Deville, working in close association with the gas undertakings of Paris. It owes much too, to Le Chatelier and Berthelot, two other French names famous in the science and technology of fuel. Its birthplace may be located in the little laboratory set up by Ste Claire Deville in 1860 in the gasworks at Villette. From this sprang larger laboratories in the great Parisian gasworks, and in 1927, when the industry consolidated its organisation in the Association Technique de l'Industrie du Gaz en France, the new body undertook the centralisation and direction of nation-wide research, sub-divided among its several commissions, each dealing with a section of the subject. On nationalisation in April, 1946, a definite department was created by law to undertake the direction of investigation and research, charged with the duty of extending existing laboratories and erecting new ones, and generally to organise and control the work done in them. The plan of the new research station of Gaz de France, described in the report presented at the International conference by Professor Ribaud, shows a total area covered by laboratories and workshops which will exceed 18,000 sq. yards.

The story of the organisation of gas research in Britain was admirably presented by Dr. J. G. King. The creation of the Gas Research Board brought to a head the somewhat loosely constituted research movement in this birthplace of Murdoch and Clegg. And when nationalisation overtook the industry, the Board had just succeeded in acquiring a territorial home at Beckenham, and was looking forward to its staffing and development. Its future activities will depend upon the Gas Council whose duty it is to settle from time to time in consultation with the Minister a general programme of research into matters affecting gas supply and carbonisation. The Gas Council is to secure the carrying out of the programme, settled as aforesaid ; it may make arrangements with the area Boards for the conduct of research ; and the area Boards themselves may undertake research. It is not very clear how all this will affect the existing Gas Research Board, but it is to be hoped that the present voluntary levy on undertakings will be regularised, or continued, or replaced by the allocation of sufficient funds to continue and develop its work as well as to build staffs, and furnish the projected works at Beckenham.

Both in Britain and in France, as in the U.S.A., the work of the central research body is powerfully supplemented by that of constructional companies. A fine example of this work was indicated by the paper presented by Mr. A. R. Bennett, of Radiation Ltd., 'A Study of Progress in the Domestic Utilisation of Gas.' Work on the development of gas-making and purifying plant has hitherto been commonly carried out in collaboration between gas undertakings and constructional companies with, be it acknowledged, considerable financial risk to the latter. This work is of vital importance to the industry.

The direction and content of the three research programmes are also different, corresponding to the different conditions prevailing in the three countries. Somewhat paradoxically the American gas industry is directing its attention to the production of gas from oil, mainly, of course, to meet the peak loads which its very wealth of resources has brought upon it, while the fuel industry generally is endeavouring to produce oil from coal to meet the vast demands for liquid fuel which even its vast resources in petroleum are not able to meet. The development of these oil-gas processes is going on side by side with the same sort of research as we see in Britain, into the basic carbon-steam-oxygen reactions, the application of fluidisation techniques, the removal of organic sulphur, and so on. The re-forming of natural gases to facilitate their use, either alone or in mixture, in normal gas

appliances is a problem peculiar to the U.S.A., although it is seen in France also where the residual gases from refineries of imported crude oil are coming into use on a, proportionately, big scale.

Research into problems arising in gas utilisation is following more or less common lines in all three countries. These lines of research are prosecuted intensively by the most important gas appliance manufacturers in Britain, as instanced by the paper already referred to. The French industry is devoting particular attention to the protection of long pipelines from corrosion, a question in which it has a special interest in view of the extension of gas grids to which it looks forward. Britain, it must be repeated, is bound by her indigenous supplies of coal. There can be seen the beginnings of an oil refinery industry which will have residual gases for disposal. But we are rightly turning our attention, under the able direction of Dr. King, to the development of coal gasification techniques which will extend the range of coal quality suitable for gas-making.

There is just one aspect of British gas research which cannot be regarded with satisfaction. It is referred to obliquely in the report under the heading of the disposal of waste liquors. There still remains the problem of restoring to a healthy condition the recovery of ammonia. It remains a great pity that the position of this intrinsically valuable by-product of the gasworks process is at present that of a liability than that of an asset. It is a pity, too, that in these days of shortage of generating plant electricity should be used for the production of ammonia while large quantities are being made a nuisance to sewage systems. Attempts have been made to market ammonium chloride, and it has been suggested that the nitrate, which would have a still higher concentration of nitrogen, could be made economically by catalysis.

These and other problems suggest a substantial extension of the already valuable work of research staffs in the works themselves. Mr. L. J. Clark (*Journal* of July 24, p. 264), has again called attention to further economies which might be effected in carbonising plant. To those mentioned by him might be added the use of the metallic recuperator for which promising alloys are now available. The recovery of waste heat in boilers is far from satisfactory as a final contribution to fuel efficiency. The amount of heat rejected from the setting should be reduced to the limit and what is rejected should be returned to it. To this end the quantity of heat fed to the setting must itself be reduced. Recent designs have achieved much in this direction. But is it good economy to feed the inferior grades of coke to the producer? Could not these grades be better fed over the new chain grates to boilers? These are some of the questions which might be added, if not to the programme of research proper, at any rate to the programme of investigations to be carried out by the research staffs in the field.

## *LOOKING AHEAD*

In the *Journal* last week we published a paper recently given by Mr. M. Sinclair Gaskill, of West's Gas Improvement Company, to the Manchester and District Junior Association of Gas Engineers. The paper was an interesting historical sketch of the very wide subject of carbonisation, and the author also glimpsed the future. Mentioning the publicity which has been given to the underground gasification of coal, he suggested that, from the information available, the possibility of this process being adopted in this country appears to be very remote. Mr. Gaskill did not discuss the advantages and disadvantages of the 'super' gas generating station, for, while the small works will inevitably be dispensed with, the economic position will compel the retention of the majority of the existing medium-sized and large works for a considerable period. 'It would therefore appear that'—we quote from the paper—'since many of the ruling circumstances will remain, the basic considerations on the selection of plant will to some extent be unchanged. This does not imply that design of carbonising equipment should or will remain unaltered. There is no doubt that development will continue although it may not be so rapid as in 1900-14.'

## *SERVICE—NEW STYLE*

A Glasgow correspondent has sent us a story about a local woman who wanted a little knob to operate a spring to raise and lower the top of the gas cooker in the kitchenette of her bungalow home. The old one was slightly burned. 'I'll drop into the showrooms and get a new one,' she said to her husband. But when she went to the Scottish Gas Board showroom and explained what she wanted, the salesman shook his head. 'It will be necessary,' he stated, 'to send a man to survey your cooker.' The lady, in complete amazement, pleaded, 'it's only a little knob, I can fix it myself,' but she did not get it. A few days later a man called, looked over the cooker, shook his head and told her: 'Nothing I can do at the moment. It will have to go through the usual channels. You must fill up a form. I haven't got it with me.' Next day he returned, showed her how to fill up the form and took it away. Two days later a large van delivered a small box; neatly packed inside was the knob. She screwed it on, gave the cooker a wipe and went on with her housework. Next day the tradesman was back—to fit the knob. A fortnight later in came an account—for 1s. 2d. 'to supplying push knob to operate top of cooker.' Attached to it were six hints on 'gas economy.' Mr. A. Bujnowski, sales manager, told our correspondent that in normal times a man would have called, fitted the knob from the spares he carried, and taken the cash. 'But at the moment we have to deliver the orders to a district one day, and next day send round the fitters. That is done with everything.'

## *'HIGH QUALITY OF COAL'*

Two articles bearing the above title were published in *The Times* on Tuesday and Wednesday of last week. Discussing coal cleaning and cost, the author remarked that the case for cleaning coal of all the removable residual ash is strong, but in the past it has run up against the difficulty of cost. The loss of 'vend' of any material which has cost something to produce is no inconsiderable matter, and the price structure of the coal industry gave no encouragement to greater discrimination by users. Why should a colliery company go to the expense of cleaning its coal, and thereby forgo the sale of a proportion of its output, when a neighbour for a similar but unrefined coal obtained the same schedule price, and when the consumer, not appreciating the true value of either fuel, chose that which weight for weight was cheaper? This difficulty was, and is, real. A price structure having little or no regard to quality and suitability is a natural impediment to better cleaning methods, which cost money. The question is whether the present possibilities of co-ordination in the industry can make more rational pricing, related to fuel values, more practicable. The author went on to say that the production of dirty coal has steadily increased. It is an urgent problem for the National Coal Board, if only because it will be increasingly difficult to sell the poorer grades as output rises and coal becomes less scarce. The task now, as part of that co-ordinated fuel policy which is supposed to be the *raison d'être* of the Ministry of Fuel and Power, is to supply each class of consumer with the fuel that is intrinsically best for his process instead of that which might be his choice because he has been in the habit of using it in the past.

## *A PERTINENT SUGGESTION*

'What is wanted technically,' the author argued, 'is a system of coal preparation by which all the characteristic components of coal—coking and gas coal, non-coking or feebly coking steam coal, natural dust, carbonaceous and non-carbonaceous refuse—are separated from each other. The methods of doing this are known. What is wanted commercially is to enable industry to see by practical application the advantages likely to accrue from the use of fuels of specific type and uncontaminated by extraneous mineral matter.' And we like the suggestion put foward that, pending the provision by the N.C.B. of adequate coal preparation capacity, which has so far not kept in step with underground reconstruction, the value of the various methods of preparation could be tested by supplying for adequate periods a limited number of typical coal consumers, say one or two power stations, gasworks, and coke ovens, with the most suitable fuels prepared in existing plants. The results would be valuable in the planning of a coal preparation policy to assist the conservation and efficient utilisation of the country's resources.

## AMENDED CODE FOR LIGHTING

The Illuminating Engineering Society's Lighting Code, which was first published as 'Recommended Values of Illumination' in 1935 and revised in 1945, has been amended and considerably expanded, and the new version, issued under the title of 'I.E.S. Code for the Lighting of Building Interiors,' has many features of interest and value. It is divided into two parts dealing, respectively, with natural and artificial lighting. It also includes notes on assessment of the amount of illumination required, together with a schedule of recommended values for a large number of specific interiors. The Code is a set of rules and recommendations intended primarily for the reference of those professionally engaged in planning and installing lighting, but it will also guide the consumer in stating his lighting requirements. It defines good lighting in terms of utility and amenity. It is good when it is suitable, in quality and quantity, for creating general environmental brightness, agreeable and beneficial to the user, and for permitting a high degree of efficiency in seeing whatever is of special importance or interest. The chief change is the printing of the illumination charts in colour. As a result the effect of difference in contrast between objects of various sizes and background and the necessity for higher levels of illumination under conditions of poor contrast are shown. Amendments have been made in the light of recent knowledge and research to the schedule of recommended values of illumination, and a useful addition is the list of British Standard specifications on illumination and lighting fittings. In appearance the Code has been improved by its publication for the first time on art paper with a stiff cover. Copies of the Code may be obtained from the Society, 32, Victoria Street, London, S.W.1, price 2s. 6d., post free.

## ELECTRICITY AND PEAK LOADS

This coming winter, industry in general will be required to cut its electricity peak demands at certain hours by as much as 20% of the 1946-47 peak loads. Even this costly inconvenience will not eliminate the risk of load shedding. Yet the winter surcharge recommended by the Clow Committee and imposed last winter as a brake on domestic consumption is to be removed. Writing on the subject in a letter published last week by *The Times*, Mr. Ronald S. Edwards, who served on the Committee, pointed out that the higher winter running charge for domestic consumers was not the only recommendation of the Clow Committee. He mentioned two other major proposals: (a) that the practice of charging commercial consumers on the basis of metered maximum demand should be extended, and (b) that in districts covered by central control systems a series of experiments should be made with water-heater control, load-limiters, time-of-day tariffs, and differential tariffs for 'firm' and 'non-firm' supplies of current. Mr. Edwards went on: 'It is sometimes argued that, if peak load control requires the fitting of instruments in every home, it would be more sensible to use the resources to build more power stations. But it might not be necessary to do anything like this to make a useful contribution. The Clow report stated that 10% of the domestic consumers account for about 45% of the domestic consumption. If tariffs associated with instrument control could be worked out which would make it worth while for the larger consumers to save at peak hours, something of a long-term value would have been achieved. Since the winter surcharge is to be dropped, it is the more important that the other Clow proposals should be pushed ahead vigorously.' In any event the electricity consumer cannot expect freedom in electrical service.

# Personal

Mr. G. L. WEARING, District Secretary of the York-Harrogate group of the North Eastern Gas Board at Scarborough, has been appointed a Justice of the Peace for the Borough of Scarborough.

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Now on his first visit home since he went to Canada 40 years ago is Mr. JAMES MARTIN, a Motherwell engineer, who has for the past 25 years been employed in the Toronto gas undertaking. During that period he has seen big extensions of the plant, so much so that it now employs 800 men and supplies gas over a large part of Ontario. They are extending gas further out from the cities and towns.

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Mr. HARRY BANKS, Engineer and Manager of the Northampton undertaking, retired at the end of July after just under 50 years in the industry. In 1900 he became a pupil of the late Mr. John Eunson, then Engineer and Manager of the Northampton Gaslight Company and after serving for five years he was appointed Technical Assistant. In 1911 on the death of Mr. John Eunson, Mr. Banks was appointed Assistant Engineer and Manager under the late Colonel G. S. Eunson; this office he held for 25 years. In 1936 he was appointed Chief Engineer and Deputy Manager to the Company and on the retirement of the late Colonel Eunson was appointed Engineer and Manager with a seat on the Board. In 1900 the annual consumption of gas was 525 mill. cu.ft., the area of supply being the town of Northampton and one village. At the end of the last financial year it was 1,901 mill. cu.ft. with extensions of the mains to 44 villages and the taking over of six small undertakings in the area.

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Mr. E. S. CAPLIN has been appointed Transport Manager of the North Thames Gas Board. Mr. Caplin served his apprenticeship in mechanical and aero engineering with Gnome and Le Rhone, and was later employed with Fiat (England) Ltd., Vauxhall Ltd., and Stewart & Ardern, Ltd. He joined the Gas Light and Coke Company in 1930 and was attached to the motor repair shop, Brentford. During the war he served as Senior Inspector of vehicles in South-Eastern Command, and later as Senior Inspector of Armoured Vehicles in the United Kingdom. He was demobilised as a Lieut.-Colonel in 1946, and returned to the Company where he was appointed Manager of the motor repair shop, Brentford. In April, 1947, he was appointed Assistant Transport Manager. He is an Associate Member of the Institute of Mechanical Engineers and a member of the Road Transport Engineers.

Miss E. WINTER, of Sunderland who has been with the Sunderland Gas Company for 25 years has been appointed Secretary of the Gas Consultative Council for the Northern Area.

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Mr. J. A. FRANKLIN has been appointed Homes Sales Manager to Ascot Gas Water Heaters, Ltd., in succession to Mr. R. J. Gregg, who will shortly be joining the Gas Council as Publicity Manager. As distinct from the sales of Ascot gas water heaters, Mr. Franklin will also be responsible for the distribution of Compoflex gas tubing and FA-Neat portable gas appliances, and for promoting the sales of all gas appliances manufactured by Radiant Heating, Ltd. Mr. Franklin joined the Company in 1937 and after serving as Branch Manager in the Eastern Counties area he was promoted to Service Manager in 1945, in which capacity he has been operating until the present appointment.

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Mr. W. T. NEWTON, M.INST.GAS E., M.INST.F., who has recently been appointed Engineer of the Walsall and District Division of the West Midlands Area, started his career in the gas industry at Hereford. After completion of his 'articles,' during which period he became a Bronze and Silver Medallist of the City and Guilds Institute, Mr. Newton was appointed Assistant Engineer and Manager at Hereford. He left to join the Woodall-Duckham Companies in 1923, and after several years in the operating department, part of the time being spent on research work, he was transferred to the construction department. He went to the Sales Department in 1930, and up to the time of his resignation was still in that department. There was a break in the early years of the war due to the slackening in demand for new plants, and during this period Mr. Newton was transferred to the design and development department as personal assistant to Mr. T. C. Finlayson. Following Mr. Finlayson's appointment as Technical Director, Mr. Newton became Secretary of the Design and Development Committee, in which key position he was responsible for the carrying out of the Company's design practice in contracts.

Dr. M. BARASH has been appointed Coal and By-Products Officer of the East Midlands Gas Board.

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Mr. J. HANCOCK, who has been appointed technical service department manager of the Nobel Division of Imperial Chemical Industries, Limited, has been with the explosives side of this department for the past 17 years. In his new position Mr. Hancock will be responsible for both explosives and non-explosives products.

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The retirement took effect at the end of July of Mr. P. G. SOMERVILLE, for 30 years Secretary of the National Benzole Association. Mr. Somerville has spent the greater part of his lifetime within, or in contact with, the gas industry. From 1903 until 1919 he was Staff Officer of the Gas Light and Coke Company, attached to the personal staff of the late Sir Francis Goodenough, C.B.E. In February, 1919, he was seconded by the late Sir David Milne-Watson, Governor and Managing Director of the Gas

*Mr. P. G. Somerville*

Light and Coke Company, to the National Benzole Association, of which he became Secretary. From 1929 to 1939 Mr. Somerville was also Secretary to the British Delegation of the International Conference of Benzole Producers. He is a Fellow of the Incorporated Sales Managers' Association. At the annual meeting of the National Benzole Association on July 13, Sir Richard Pease, BART., President, on behalf of the Association presented him with a silver tea service and salver, suitably inscribed.

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## Retirement of Colonel C. M. Croft

Colonel CYRIL M. CROFT, D.L., J.P., M.I.C.E., M.I.MECH.E., M.INST.GAS E., Managing Director of the Wandsworth and District Gas Company until the absorption of the Company by the South Eastern Gas Board on May 1, retired at the end of July after over 40 years' active service in the gas industry. He carries with him the cordial wishes of a very wide circle of friends, not only in this country but throughout the gas industry of the world, for many years of happy retirement.

Colonel Croft served his pupilage under Mr. H. E. Jones and Mr. F. H. Jones, past and last Chairmen of the Wandsworth and District Gas Company, starting his active association with the gas industry in 1908. After a short term of service with the Commercial Gas Company as Assistant District Engineer, he was appointed to the position of Works Manager of the Wandsworth and Putney Gas Company. On the formation of the Wandsworth, Wimbledon, and Epsom District Gas Company he was appointed Assistant Engineer to the amalgamated Company. Eight years later he became Chief Engineer of the Company, and was appointed ten years afterwards to the post of Chief Engineer and General Manager. In 1943 he was elected to a seat on the Board of the Company, and in 1946 he became Joint Managing Director. He became a Member of the Institution of Gas Engineers in 1920, joined the Council in 1940, and was Vice-President in 1943-45 and President in 1945-46. In the latter year he was elected President of the International Gas Union, a position from which he retired in June.

Since Colonel Croft joined the Wandsworth undertaking, consumers have increased from 29,000 to nearly 250,000, and gas output has kept pace with the increase. As the demand grew, so also did plant requirements, and a characteristic of the Wandsworth works today is the evidence of vast engineering accomplishments no less than ingenuity in some of the methods of operation. Coal brought by sea-going vessels can be unloaded, conveyed, and discharged into the gas-making plants virtually untouched by hand, and the resultant coke is also handled mechanically right up to the time that it emerges from chutes, cleaned and graded, ready for bagging. Colonel Croft introduced to Wandsworth as innovations to British gasworks practice the C.O.L. chamber oven which, at the time he described it in an article in the *Journal* in 1929, was producing 3 mill. cu.ft. of gas per day, and the tower system of dry gas purification, which he described in a paper to the Institution of Gas Engineers in 1939. The tower purifiers were the first to be erected in England.

Among other qualifications, Colonel Croft is a Member of the Institution of Civil Engineers, a Member of the Institution of Mechanical Engineers, a J.P. for the Wandsworth Division of Surrey, and Deputy Lieutenant of the County of London. He was a pioneer in the design of up-river vessels, each successively larger in size, capable of carrying cargoes of coal from the north east coast direct to the Wandsworth works. In 1906 it was an achievement when the first ship brought up 1,050 tons; today cargoes of 2,709 tons arrive regularly, largely as the result of Colonel Croft's enterprise. He is a General Income Tax Commissioner for the West Brixton Division; Chairman of the Gas Consultative Panel for the Allied Control Commission for Germany; Hon. Treasurer of the World Power Conference; Vice-Patron of the R.A.S.C. Regiment Association; Hon. Colonel of the R.A.S.C.; Conservator of Putney and Wimbledon Commons; a Member of the British Railways Arbitration Tribunal; and was, prior to nationalisation, a Director of the Watford and St. Albans Gas Company, the Wholesale Coke Company, Woking District Gas Company, and the Greater South London Gas Corporation. He always took a keen interest in the welfare of the younger men in the gas industry, and one occasion which stands out in the memory was a meeting of the London Juniors at which all the normal rules of debate were suspended in order that Colonel Croft, then Vice-President of the Institution, should have a heart to heart talk with the members on the general subject of the future for the gas engineer.

At a large gathering representing every station and every department of the Wandsworth undertaking prior to his retirement, Colonel Croft was presented with an antique clock and a camera, subscribed for by the employees, with accompanying tributes to his technical achievements and his ability to win the confidence and affection of those who worked under him.

# Obituary

The death occurred on July 29, after a long illness, of Mr. J. T. GRAY, of Stewart and Gray, Ltd., Paisley Works, Swains Road, Tooting Junction.

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News reached us as we went to press that the death occurred suddenly on Aug. 7 of Mr. STANLEY V. FAWKES, M.INST.GAS E., Assistant Engineer of the Yorktown (Camberley) undertaking. He had served under Mr. H. J. Randall at Camberley for many years and was apparently in good health until four or five days before his death.

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The death occurred on July 19 of Mr. ERNEST CLOUGH, Founder and Managing Director of Clough (Croydon) Ltd. Nearly 50 years ago he invented the first of the many specialities and products which made him so well known. Many tributes to him received by the Company testify to the high esteem with which he was regarded, esteem earned by his untiring energy, force of character, and tremendous knowledge, always willingly passed on.

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The death occurred on Aug. 1, of Mr. W. H. HOFFERT, M.A., B.SC., F.R.I.C., Chief Chemist of the National Benzole Company, Ltd. Mr. Hoffert had been ill only 10 days, suffering from a nervous breakdown, and died from heart failure in hospital at Watford. Mr. Hoffert was appointed Research Chemist to the National Benzole Association in 1923, and was well-known in the benzole industry. He was joint author of 'Motor Benzole, Its Production and Use,' and had written countless reports and memoranda on all aspects of benzole production and refining.

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The death occurred in New York on June 17 of Mr. PRESTON S. MILLAR, President of the Electrical Testing Laboratories, Inc. He was widely known and highly regarded in America and in other countries for his work in connection with the utilisation of electricity and in illuminating engineering. Born in 1880 his whole life was devoted to testing laboratory work and illuminating engineering. He was one of the founders of the American I.E.S. and a member of the British Illuminating Engineering Society. For nearly half a century he was one of the outstanding personalities in the lighting field and though he made contributions in many aspects of lighting he was particularly well known for his work in the fields of light measurement and in street lighting. He took an active part in the work of the International Commission on Illumination.

# Gas Consultative Councils

The following additional members of Gas Consultative Councils have been chosen by the Minister of Fuel and Power: Mr. R. RUTHERFORD (Stockton-on-Tees), Northern; Councillor E. T. EVANS, J.P. (Aberystwyth), Wales; Alderman C. G. MARCHANT (Hereford), West Midlands; Alderman H. DODGSON, J.P. (Weston-Super-Mare), South Western.

## Southern

The Gas Consultative Council for the Southern Area under the Chairmanship of Mr. J. W. MOORE (Bournemouth) will comprise: Mr. R. BATES (Purbrook, Hants.), Councillor Mrs. R. CONNER, J.P. (Totton, Hants.), Councillor C. G. COUSINS, J.P. (Aylesbury), Mr. R. CRAIG (Cowley, Oxford), Councillor J. T. DAVIES (Gillingham, Dorset), Mr. E. DAWSON (Goring), Mr. G. P. DURHAM, O.B.E., M.C. (Portsmouth), Mr. N. W. GARDINER (Reading), Councillor R. W. JONES, O.B.E. (Southampton), Mrs. E. I. KING (Winchester), Mrs. B. M. LAKE (Salisbury), Mrs. M. LEFROY, J.P. (Bournemouth), Councillor H. P. E. MEARS, O.B.E. (Bournemouth), Alderman H. R. METCALF, J.P (Newbury), Councillor Mrs. A. E. M. OLIVER M.B.E. (Cosham, Portsmouth), Mrs. K. E. REEVES, J.P. (Parkstone, Dorset), Mr. H. SANDERS (Farnham), Mr. J. E. THOMAS, M.B.E., J.P. (Cowley, Oxford), Mr. W. H. WARRIOR (Cowes, I.O.W.), Mr. J. R. WOODS (Southampton).

## Eastern

Following the appointment of Mr. R. TURNER as Chairman of the Eastern Gas Consultative Council, the Minister of Fuel and Power has also announced the names of the rest of the members of the Eastern Gas Consultative Council as follows:—Sir WILLIAM ACLAND, BART., M.C., A.F.C., (Welwyn), Mrs. B. ANDREWS (West Luton), Mr. F. APPLETON (Braintree), Councillor W. J. BAILEY (Chelmsford), Mr. U. H. BETTERIDGE (Cambridge), Alderman W. BIRD, M.B.E., J.P. (St. Albans), Alderman F. DOGGETT (Cambridge), Councillor W. J. FINCH, J.P. (Norwich), Mr. W. G. A. GARDINER, J.P. (Ipswich), Mrs. G. M. JAY, J.P. (Enfield), Miss M. L. KEITH (King's Lynn), Mr. S. G. KEMP (Norwich), Miss M. A. POLLARD (Hemingford Grey, Huntingdon), Councillor V. H. REVETT (Ipswich), Mr. W. H. ROGERS (Colchester), Alderman T. H. SIMONS, J.P. (Watford), Councillor G. A. SMITH (Peterborough), Alderman F. H. STONE (Great Yarmouth), Mr. W. C. WAGHORN (Edmonton), Mr. T. WALTON (Leverington, Wisbech).

## North Eastern

As already announced, Mr. W. REGAN, J.P., has been appointed Chairman of the North Eastern Gas Consultative Council. The Minister of Fuel and Power has now announced the names of the rest of the members of the North Eastern Gas Consultative Council as follows: Mr. N. BARKER (Barnsley), Alderman T. R. BOTTOMLEY (Lightcliffe), Mr. W. BOOTH (Baildon), Alderman J. CARISS (East Bowling, Bradford), Mr. H. J. CRAVEN (Harrogate), Mr. E. N. DUFFIELD (Leeds), Mrs. L. E. ENGLAND (Bradford), Mr. T. W. T. HAMMERTON (Hull), Mr. H. HARDY (Morley), Mr. A. D. HEATON (Liversedge), Councillor F. HIGHAM (Brough), Alderman F. HOLMES (Hull), Mr. J. HOPWOOD, J.P. (Fulford, York.), Mrs. C. KENTON-TAYLOR (Headingley, Leeds), Mrs. N. PEARSON (Huddersfield), Councillor Mrs. J. SMITH, J.P. (Huddersfield), Mr. H. SUTCLIFFE (Horsforth), Mr. S. WADE (Leeds), Miss A. WILD (York), Alderman J. H. WHITTAKER, J.P. (West Todmorden), Alderman G. H. NORTON (Haworth, Keighley), Alderman F. C. WHITTAKER, J.P. (Scarborough). The address of the Consultative Council is the North Eastern Gas Board Offices, Bridge Street, Leeds, 2. (Telephone: Leeds 32571-4).

# Letters to the Editor

## Dry Cooling of Coke

DEAR SIR,—I would like with your permission to make a few comments on the above report published in the *Gas Journal* of July 27. (1) In the opinion of the 'Working Group' the advantages claimed for 'dry quenched' coke by the Ford Motor Co. are due to more precise screening than is possible with 'wet' coke, and the Group then emphasise that dryness alone is apparently not an advantage. Assuming their assumption is correct, nevertheless the absence of moisture in the first case is the essence of being able to produce sized coke not covered with adhering layers of dust. With regard to dust the difference between wet and dry quenched coke appears to be that in the case of the latter the dust problems is confined to the screens and can be controlled, whereas in the case of wet coke it persists from the screens right down to the consumers' premises, depending upon the amount of surface drying which occurs.

(2) Too much emphasis has been put on the fact that dry coke does not command a higher price than wet coke, but I think it will be admitted that it is a better quality coke and is therefore more competitive and a better guarantee for holding what markets we have and favourable for expanding sales.

(3) With regard to friability one would expect the dry quenched coke to be less friable than the wet quenched coke due to the circumstances of each case.

With dry coke we have an annealed product and with the wet quenching and shock cooling we get stresses and strains created in the coke structure which must influence its subsequent strength.

(4) No mention is made of the very important property of dry quenched coke—namely, that it is silent burning and a guarantee against explosions and flyers when consumed in the domestic grate, factors which are essential if we hope to meet a domestic fuel demand.

Yours faithfully,

F. FIRTH.

North Eastern Gas Board, Laboratory, Leeds, 2.
July 29, 1949.

DEAR SIR,—As I was responsible for installing of the dry coke cooling plant at the Oswald Street Gasworks, Burnley, I am interested in the abstract of the report by the Working Group of the Ministry of Fuel and Power published in your recent issue, and offer a few comments regarding this particular plant for the operation of which I was responsible during the first six years.

I am surprised that anyone should be disinclined further to consider such a plant because no higher price could be obtained for the dry coke, and would like to mention further points in its favour.

1. This I consider the most important. The absence of acid-laden steam which causes immeasurable damage to a works, generally, and the great reduction of the terrific maintenance costs of wet quenching plant and subsequent coke handling plant, and storage.

2. The absence of this steam reduces the main objection in the use of horizontals of interference with the amenities of the neighbourhood surrounding the works.

3. The coke is, nevertheless, popular, even if a larger price cannot be obtained for it; after all, the consumer is not paying for large quantities of water.

4. The technical results in the use of dry coke for water gas manufacturers are improved, resulting in a lower fuel cost. The same applies to the coke used for other bulk purposes on the works.

5. There is some saving in the cost of quenching water. In Burnley this was substantial, as we were compelled to purchase some town water for works purposes.

6. When vertical coke was popular for export abroad, we were able to sell large quantities of dry cooled coke when wet quenched horizontal coke was not acceptable on account of its weight.

The ignitibility of the coke is admittedly inferior in its perfectly dry state to wet quenched coke, but this is no drawback in its use for which the majority is sold, for bulk consumption. The Burnley plant has, in my opinion, been a good paying proposition, particularly as the Government contributed a grant of 50% of the interest for a period of 15 years on the capital cost.

The report confirms that very cheap steam is produced in such a plant. During my regime we obtained over a long period over 800 lb. of steam from, and at 212°F. per ton of coke cooled, with 185°F. of superheat. When the carbonising plant was working to full capacity, the whole works was run on waste heat. The one solid fuel boiler on the works was not required. In addition, a waste heat boiler was installed on the carbonising plant and one on the carburetted water gas plant. The solid fuel boiler could therefore be regarded as a partial standby to these waste heat boilers, as well as to the Sulzer plant, and in view of the full utilisation of steam in the design of the works, if the dry coke cooling plant had not been installed, other solid fuel steam plant would have been necessary. All the electric power and lighting was supplied from steam-driven generators without any further standby.

Besides the use of steam for all works purposes, including by-products processes, a fireless locomotive was also used to take advantage of this cheap steam, and the heating of buildings was performed by exhaust steam.

The record of the working of the plant over 20 years, has, I think, justified the absence of a standby wet quenching plant.

Yours faithfully,

J. HERBERT CLEGG.

Hazelwood, Blackburn Road, Rishton, nr. Blackburn.
Aug. 5, 1949.

# News in Brief

**The British Welding Research Association** announces that as from Aug. 13 its telephone number will be changed to Langham 7485/9.

**Coal and Coke Traffic Receipts** of the British Transport Commission for the four weeks ended July 17 were £5,374,000, compared with £5,145,000 for the corresponding period of 1948. Receipts for the year to that date were £37,265,000, against £35,166,000 in 1948.

**Carlton U.D.C.** has protested strongly against a 60% increase in the price of gas for street lighting in the area—the equivalent of a ½d. rate. One councillor, commenting that the new charges had come into force since the East Midland Gas Board had taken over, said: 'We should be getting used to this sort of thing in these days.'

**The Grey Edition** of the Institution of Gas Engineers' Communication No. 343/156, 'Coke for Use in Open Fires from Continuous Vertical Retorts, by T. F. E. Rhead and E. T. Pickering,' has been published. Copies are obtainable from the Institution headquarters, 1, Grosvenor Place, London, S.W.1, at 2s. 6d. per copy, post free inland.

**Mr. Leslie Hardern,** Public Relations Officer to the North Thames Gas Board, addressed the Specialist Syndicate of the Administrative Staff College at Henley, on July 18, on 'Public Relations.' The Syndicate included administrative staff from the War Office, Ministry of National Insurance, the Railway Executive, Unilevers, Cadburys, the General Electric Company, Australia, and South Africa.

**Employers are Reminded** by the Ministry of National Insurance that they should stamp an employee's National Insurance card as usual for any holiday week for which the employee is paid wages, whatever the amount, or for which he receives holiday pay of more than 20s. out of funds provided entirely or partly by the employer. The employee must stamp his own card at the non-employed (Class 3) persons rate for any other holiday week or any week when he stays away from work and is not drawing benefit.

**Treasurer H. G. Kerr** has drawn the attention of Saltcoats (Ayrshire) Town Council to the effect on local rating of the nationalisation of the gas industry. Valuation of the undertaking is now fixed by the Assessor of Public Undertakings (Scotland), while previously, when the undertaking was owned by Saltcoats Gas Company, the valuation was fixed on the revenue and expenditure principle. The difference in these two valuations represents a reduction of £3,228 in the rating value of Saltcoats, equivalent to a loss in local rating of £2,394, or 6½d. in the pound. The Town Council, realising that many other burghs will be similarly affected, agreed to associate themselves with any joint action contemplated.

**The 'Co-Partner,'** which has been the house magazine of the Bournemouth Gas and Water Company for nearly 30 years, will in future be published to cover the whole of the Western Division of the Southern Gas Board. The last issue of the old series includes a descriptive article on the Weymouth undertaking and a full account of the co-partners' farewell celebrations which followed vesting day. A note on the future of the old Company's water undertaking states that it is still part of the Bournemouth Gas and Water Company, but it is no longer linked with the gas undertaking. It has its own chief officials, with temporary headquarters next door to the Gas Offices in Old Christchurch Road. The water undertaking is now a self-contained unit, or very nearly so.

**When the East Midlands Gas Board** took over the Skegness U.D.C. gas undertaking there was a revenue balance of £16,240. Having regard to the fact that some years ago ratepayers contributed nearly this sum to put the concern on its feet, the Council applied to have the amount transferred to the municipal accounts. The Ministry of Fuel and Power contended that it was not appropriate to consider the application. The Clerk to the Council pointed out that the Ministry's citations of sections of the Gas Act had no reference to the Council's application. The Finance Committee has upheld this view and recommended that the facts be communicated to Comdr. J. Maitland, M.P., with a view to the matter being raised in Parliament and also that an interview with the Ministry be sought.

**The 15th Autumn Research Meeting** of the Institution of Gas Engineers will be held in London on Tuesday and Wednesday, Nov. 29 and 30.

**The Wales Gas Board** announces that Mr. Hugh T. N. Gaitskell, Minister of Fuel and Power, has intimated his willingness to declare in operation the new plant at Pontypool on Oct. 20. The actual ceremony will in all probability take place on the site of the new works in the afternoon of that day.

**The Association of Public Lighting Engineers** will hold its annual meeting at Llandudno from Sept. 12 to Sept. 16, under the Presidency of Mr. A. S. Tapsfield (City of London). The offices of the Association have been transferred from 68, Victoria Street, S.W.1, to 22, Surrey Street, Strand, W.C.2 (telephone Temple Bar 9607).

**The First Major Effort** of the Coventry undertaking in regard to joint publicity with the West Midlands Divisional Coal Board was on show at a recent open air exhibition. Panels designed in the undertaking's display studio told in diagrammatic form the story of coal from the mine to the modern gas appliance, with elementary details of gas manufacture and the products obtainable from the treatment of coal.

**The Newly Formed Home Service Advisers' Discussion Group** of the East Midlands Gas Board held its first meeting in the Gas Showrooms, Lower Parliament Street, Nottingham, on July 28, when the following officers were elected:—Chairman: Mrs. D. M. Turner (Rotherham); Deputy Chairman: Miss M. Heathcote (Nottingham); Secretary: Miss P. J. E. Dodd (Leicester).

**The Board of Imperial Chemical Industries, Ltd.,** has decided to make a grant under deed of covenant to the United College of St. Andrews University of £2,500 a year, less tax, over the seven years 1949-55, inclusive, to assist in the provision of residential facilities for post-graduate research workers. The grant will not be confined to chemists or scientists, but will be available to all those engaged in original enquiry.

**Two Novel Window Displays,** one dealing with cookers and the other with hot water, are being circulated through the various showrooms in the Birmingham District of the West Midlands Gas Board. The cooker display is built up in dioramas. Multi-coloured flowers and foliage fit into lettered slots and model birds may be put into any part of the display. Larger flowers carry captions each related to points of interest in a modern gas cooker. The hot water display is an example of the use of puppets. In construction all kinds of unlikely materials are used. Each display is about 6 ft. 6 in. wide and 5 ft. high.

**Details have been released** of gasworks extension schemes planned by the Northern Gas Board. At Elswick, Newcastle-on-Tyne, a start is being made on a 3 mill. cu.ft. all-welded spirally guided holder. The contractors are the Oxley Engineering Co., Ltd. Work is also in hand on large developments at Howdon, Wallsend. At Sunderland new developments at Hendon works include a new holder, while additions to the coal-gas plant are to be carried out by West's Gas Improvement Co., Ltd. On Teesside important gas developments are to be carried out at Stockton and Middlesbrough, but these are still in preliminary stages.

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# Diary

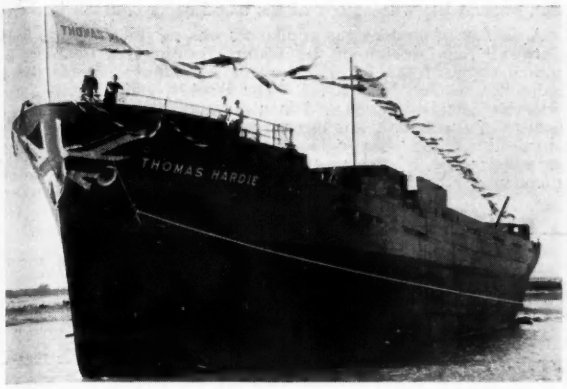
Sept. 6 and 7.—**Irish Gas Association:** Annual Meeting. Alliance and Dublin Consumers' Gas Company's Lecture Theatre, D'Olier Street, Dublin.

Sept. 8 and 9.—**Combustion Engineering Association:** Conference on the Rational Allocation of Coal, Palace Hotel, Buxton.

Sept. 12-16.—**Association of Public Lighting Engineers:** Annual Meeting, Llandudno.

Sept. 15.—**North British Association:** Annual General Meeting, Music Hall, George Street, Edinburgh.

# LAUNCH OF THE 'THOMAS HARDIE'



*Our photograph shows the launching by Mrs. N. Willsmer of the m.v. 'Thomas Hardie,' the latest addition to the fleet of the North Thames Gas Board. Mrs. Willsmer was accompanied by Mr. N. Willsmer (formerly Chief Engineer of the Gas Light and Coke Company) at the ceremony, which took place on July 11. Included in the photograph are Mr. and Mrs. A. Aikman, Mr. and Mrs. Harvey, and Mr. A. Miller, representing Grangemouth Dockyard Co., Ltd., and Messrs. F. C. Asgill and T. Spry, representing Stephenson Clarke, Ltd.*

# EFFECTIVE GAS PUBLICITY AT TWO MAIDSTONE SHOWS

The Borough of Maidstone recently celebrated the fourth centenary of its first charter. The celebrations were spread over a week from July 2 to 9, and as befitted one of the oldest industries in the town, no small part was taken in these by the Maidstone gas undertaking.

An Industrial Exhibition was held in the Agricultural Hall at which all the principal local industries were represented. The gas stand which occupied a corner site, was divided into two sections, one of which portrayed the progress which has been made in gas supply during the 126 years' life of the Maidstone undertaking. On one side could be seen a selection of wonderful antique cookers and fires lent by Radiation Ltd., and R. & A. Main, Ltd., which were in striking contrast to the modern appliances shown opposite. Mounted at the back of the stand was a recent aerial photograph of the gasworks alongside reproductions of three old prints unearthed from the local museum, one of which was a view of the High Street in 1823 showing the first gas lamps.

The main feature of the stand, however, was the section in which, for the first time, Mr. Therm featured in his Puppet Show. These puppets were enjoyed by large crowds of all ages. They were particularly popular with the organised parties of school children, who visited the exhibition each day. This new form of publicity has the advantage that the script of the show can be adapted for any occasion. The Puppet Show was produced by Mr. and Mrs. Stavordale who were introduced to the Maidstone undertaking by the Display Section of the Gas Council.

Other activities in which the gas undertaking took part during the celebrations were a carnival procession and a window display competition. The carnival lorry was similar to the successful entry last year, in which father was engaged in washing up the dishes. This year the unfortunate man had to bath the baby, and his antics created amusement among the crowd all along the route of the procession. The hot water issuing from the spout of the bath heat, came from the water circulating system of the lorry. A small pump was fixed to the lorry engine, and a fine flow of really hot water was obtained. This lorry obtained third prize from among a large entry.

*One hundred and twenty-six years of unfailing gas service was celebrated on the South Eastern Gas Board's stand.*

## Kent Agricultural Show

The gas stand at the Kent County Agricultural Show, held at Maidstone on July 13 and 14, was both designed and built by the Rochester and Maidstone undertakings of the South Eastern Gas Board, and occupied a prominent position on the show ground with a frontage of 60 ft. on each of the main avenues. Gas, electricity, and water were laid on to the stand, and the majority of the exhibits were live.

*A panoramic view of the gas stand at the show.*

In addition to a comprehensive display of modern gas appliances, cookery demonstrations featuring egg and chicken cookery were given at regular intervals on one side of the stand. On the other side, a continuous film show was given featuring the Gas Council film 'The Centuries Between,' the theme of which, the development of gas supply in a rural area, was most appropriate. Weary visitors were pleased to sit down for a short time to watch the demonstrations and good audiences were readily obtained.

An exhibit which created a great deal of interest was a gas-heated chick brooder loaned by Mayes Bros. of Wickford, Essex, which was filled with live chicks. On the day previous to the show, there was a little temporary difficulty with the brooder and with a skeleton unit loaned by Electrolux Ltd., owing to the tremendous heat. The thermostat of the brooder should have been set at 90°, but the shade temperature was considerably in excess of this, and the unfortunate Electrolux unit was having a hard struggle to manufacture its ball of ice. After its position had been slightly altered, the Electrolux unit did spendidly during the show, despite the weather, but it was not possible to light up the chick brooder. Another exhibit which created great interest was the Ascot 'Magic Eye.'

One feature of the construction of the gas stand which is always much admired at this show was the use of purifier grids for the floor, and as in past years, other exhibitors case envious eyes at them. Provided the ground is reasonably level, they provide a beautifully firm base for the exhibits, and should the weather be wet, prevent the whole floor of the stand being churned into mud.

A display of modern gas appliances was exhibited by the South Cornwall Sub-Division of the South Western Gas Board at the annual show of the Royal Cornwall Agricultural Association at Falmouth on July 13 and 14. The display, which aroused considerable interest, was staged in a marquee 100-ft. by 45-ft. A feature of the exhibit was the use made of decorative slogans, the mural illustrating 'Gas in Home—Hotel—Farm and Factory' being outstanding. The show ground covered 32 acres and the total attendance exceeded 35,000.

# SHORT REFRESHER COURSE FOR TEACHERS

## FIVE DAYS OF CONCENTRATED EXPERIENCE

FOR over 20 years the annual refresher course for teachers of Gas Engineering and Gas Fitting has been an important feature in the organisation of technical education for the industry. This year it was held at Sheffield, where at Crewe Hall on Sunday, July 3 there were gathered together 54 teachers from all parts of England, Wales and Scotland to begin five days of concentrated experience.

Crewe Hall, where those not living in Sheffield stayed for the period of the course, is a hall of residence of the University of Sheffield and proved to be a fortunate choice, for nothing could exceed the kindness and efficiency of the attention of the staff there. Most of the meetings were held in the large common room of the Hall, and here the Director of the course (Dr. P. C. L. Thorne, H.M.I.) welcomed the lecturers on behalf of the Ministry of Education and indicated the importance of the various features in the programme, which had already been issued to the members, and what particular advantages they might expect to derive from the course.

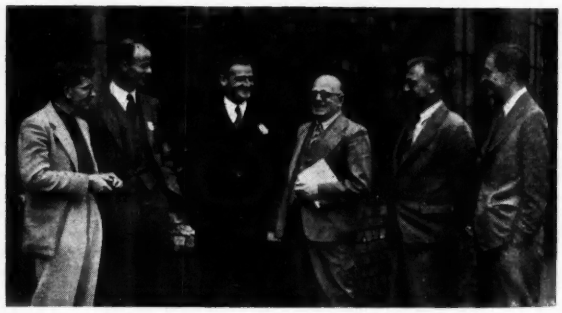
On Monday morning, July 4, the first of the lectures on methods of teaching by Mr. P. Luckman, B.Sc., of the Huddersfield Training College for Technical Teachers, was given ; and it is an understatement to say that all were fascinated by his vigorous exposition and ingenious demonstrations. Later in the morning the course broke up into a number of tutorial discussion groups, each with a member of the staff as adviser. These were held on three mornings and the matters discussed reported to the whole body at the final meeting. After lunch, the members of the conference went on private bus to the offices of the Sheffield and Rotherham Division of the East Midlands Gas Board, to be welcomed by Mr. E. H. Harman, B.Sc., General Manager of the Division. The support given to the course by Mr. Harman and the various officers of the Division did much to ease the difficulties of organisation. The teachers were privileged to see the detailed arangements for remote control of the gas supplied from coke ovens as carried out by the Division and in the cinema a number of the latest gas films were seen. Tea was provided in the dining rooms at the offices in Commercial Street.

On Tuesday the second lecture on teaching methods was given, to be followed by a talk on visual aids by Mr. Graham Satow, Chief Education Officer, Stewarts and Lloyds, Ltd., who outlined the usefulness and limitations of films, film strips, and other optical aids. As a supplement, a session during the evening was given up to a demonstration of some of the film strips issued by the Institution of Gas Engineers. In the afternoon a visit was paid to the Industrial Research Department of the Sheffield and Rotherham Division and great interest was displayed in the various devices and projects under development. On return to the Commercial Street offices Mr. J. P. Medd lectured on 'Flame Failure Devices,' and the members of the course were again entertained at tea.

On Wednesday, the course continued with a discourse by Mrs. M. A. Whitehead, M.A., L.R.A.M., of the Education Department, University of Leeds, on the use of the voice in teaching. Her searching analysis of the difficulties experienced by lecturers and their audiences was enthusiastically received and was followed by individual work with members of the course in odd moments during the next few days. In the afternoon some of the lecturers visited the laboratories of the Fuel Department of the University, where the party was conducted round by Professor R. J. Sarjant, O.B.E., D.Sc., while the remaining members proceeded to the newly equipped School of Building of the Sheffield Technical College at Salmon Pastures. Here a talk on workshop and laboratory equipment was given by Mr. T. Hall, A.R.I.B.A., Head of the School.

Thursday was a strenuous day, beginning with the second of the lectures on the use of the voice and the tutorial groups. In the afternoon three parties were formed to visit three steel works in which town gas is abundantly used : Thomas Firth & John Brown, Ltd., the English Steel Corporation, Ltd., and Brown Bayley's Steel Works, Ltd. After dinner, Mr. R. N. Le Fevre, Training Officer of the North Thames Gas Board, lectured on the organisation of practical work in classes.

On the last full day, Friday, the morning was devoted to a general discussion of syllabuses and examinations for the various ranges of knowledge required by the industry. On this occasion there were present, besides Mr. Le Fevre, who is a City and Guilds Examiner in Gas Fitting, Mr. G. F. Smith of that body and Mr. A. G. Higgins, Assistant Secretary to the Institution of Gas Engineers. A vigorous discussion took place, as it had been well prepared by the tutorial groups. In the afternoon, the Neepsend works of the Sheffield and Rotherham Division was visited and after a tour of the works, Mr. John Bateman, Chief Engineer (Production), addressed the teachers on flexibility in gas production in the area.



*A visit was made to the Sheffield and District Industrial Gas Development Centre. The above photograph was taken during the visit, and includes Mr. A. C. Jennings and Mr. J. P. Medd, of Sheffield, Dr. P. C. L. Thorne, Dr. N. S. Capper, Mr. A. W. Doyle, and Mr. J. Maitland-Edwards, H.M. Inspectors.*

The final meeting was held after dinner on Friday evening. The topics discussed in the groups were reported upon and a general consideration of the work of the course ensued. There was no doubt that from many aspects it had been an outstanding success. Teachers had met each other and the inspectors responsible to the Ministry for the efficiency of the instruction in various areas under social conditions which made discussion of troubles easy. A great deal was learned and, what is more, thought had been stimulated so that many went away encouraged. The industry owes a great deal to the Ministry of Education for the organisation of the course, to the Institution of Gas Engineers for meeting expenses of the teachers not otherwise covered, and to the East Midlands Board and the Sheffield and Rotherham Division for the trouble and care taken in organising visits and for hospitality. It is hoped to hold a similar course next year, possibly in London ; details will be announced later.

# BIRMINGHAM BREAKS GAS OUTPUT RECORDS

## FINAL REPORT OF THE MUNICIPAL UNDERTAKING

BIRMINGHAM City Council at its July meeting received a report from its Gas (Transitional) Committee covering the audited accounts and balance sheet of the gas undertaking for the financial year ended Mar. 31 and a report on the activities of the Gas Committee for the same period. From May 1 the undertaking became vested in the West Midlands Gas Board under the Gas Act, 1948, and the Gas Department thus passed out of the control of the City Council on that date.

The year, like many of its predecessors, was one of great prosperity for the undertaking, several gas output records having been broken during the winter and the total output for the twelve months having reached the new high level of 24,437,386,000 cu. ft., despite the comparative mildness of the winter. Even this astronomical figure, however, would have been passed had it been possible to meet the potential demand in full, but unfortunately the Committee's inability during wartime, for causes beyond its control, to proceed with works extensions of whose necessity it was well aware, made it necessary to decline to accept certain large industrial loads which, in normal circumstances, would have been most attractive. This state of affairs assumed much more serious proportions in some other gas undertakings, the steps taken by the Committee having reduced the difficulties in the Birmingham area to a minimum.

Saltley gas works has been completely reconstructed during the past few years, the installation of various new plants at Nechells works is nearing completion, and a very large scheme of reconstruction and extension of Swan Village works has recently been embarked upon. The combined effect of these schemes when they have all come to fruition in 1953 will be to increase the daily gas manufacturing capacity of the undertaking from 74 mill. cu. ft. in 1941 to 105 mill. cu. ft. In order to meet the demand in the period before these projects can be fully commissioned the Committee has, as a short-term policy, installed producer gas plants at each of the four works of the undertaking, having a total capacity of approximately 10 mill. cu. ft. per day, for mixing with the coal gas and carburetted water gas.

The Committee has long recognised that all the extensions will not suffice to supply the whole of the gas likely to be required in a few years' time, and preliminary plans for the construction of a new gasworks at Washwood Heath have been drawn up. The furtherance of these plans will, however, now be the responsibility of the West Midlands Gas Board.

The accounts show a net surplus of £231,880 after crediting net revenue account with £157,555 brought from the war damage suspense account, being the balance of that account at Mar. 31, 1948 not now required. The actual net trading profit is therefore £74,325 as against £290,007 at March, 1948. No charge is included for income tax in the year under review. This is due to the liability for 1948-49 having been reserved in the accounts for the year 1947-48 on the profits for that year, these profits forming the basis for the assessment for 1948-49.

The credit balance of revenue account transferred to the net revenue account amounts to £290,247. The charges for annuities, interest, &c., shown in the net revenue account amount to £74,552 (a decrease of £891). The net charges for redemption of debt amount to £141,370 (an increase of £9,780).

### Price of Gas

The reduction of net trading profit is largely due to the increased cost of materials and labour. To offset some of these increases the Committee, with great reluctance, had to raise the price of gas by ¼d. per therm as from the meter readings taken on and after Mar. 15, in pursuance of powers vested in them by the two Gas Charges Orders of 1947. This increase only covers the higher costs specifically mentioned in the Gas Charges Orders and additional expenditure, estimated to amount to £350,000 during the year ending Mar. 31, 1950, outside the scope of these Orders has not been taken into consideration, as it is anticipated some of this expenditure will be offset by increased gas consumption.

The Committee's policy has always been to keep the price of gas at the lowest possible level consistent with prudence. In addition to the increase in price the Committee obtained the sanction of the Minister of Fuel and Power to the establishment of a minimum price for gas at 270,000 therms (60 mill. cu. ft.) per quarter, so that such consumptions, instead of being charged in accordance with the normal block rate scale, are charged at a flat rate of 8.535d. per therm less 5% discount for cash. This course has become necessary to ensure that these large consumers make a proper contribution towards the cost of production and distribution.

The Gas Department came into being in 1875 when Parliament placed on the Statute Book the Birmingham (Corporation) Gas Act, 1875, which gave legal sanction to the acquisition by the Corporation of the gas undertakings then operating in the area, namely the Birmingham Gas Light and Coke Company and the Birmingham and Staffordshire Gas Light Company. Adjoining local authorities within whose borders these Companies were also active were given by Parliament the option of purchasing the portions within their respective territories, and all but two or three did so. Thus is explained the anomalous position which has existed for many years in that Birmingham has supplied gas to Wednesbury and Darlaston which are divorced from the remainder of the undertaking's statutory territory, and has possessed a gasworks at Swan Village within the Borough of West Bromwich which has not been served thereby because it has had its own undertaking.

### Continual Progress

The history of the Department in the 74 years which have elapsed since its birth has been one of continual progress. The foundations so carefully laid down by Joseph Chamberlain have been faithfully built upon by his successors, and today the undertaking is the second largest and one of the most efficient in the country.

The following figures will, perhaps, be the best commentary upon the achievements of these years :—

| | 1875 | 1949 | |
|---|---|---|---|
| Consumers ... ... | 46,000 | 353,658 | |
| Annual gas output ... | 2,327,596,800 cu. ft. | 24,437,386,000 | cu. ft. |
| Annual revenue ... | £469,605 | £6,427,520 | |
| Length of gas mains | 400 miles | 2,222 | miles |
| Gas storage capacity | 5,098,000 cu. ft. | 54,000,000 | cu. ft. |
| Coal carbonised ... | 296,000 tons | 1,164,219 | tons |
| Coke made ... ... | 167,106 tons | 753,403 | tons |
| Gas oil used ... | Nil | 7,620,141 | gal. |

If, in addition, it is remembered that up to 1933 when, by virtue of the provisions of the Birmingham Corporation (General Powers) Act, 1929, the Department was prohibited from so doing, it had contributed over a period of 58 years no less a sum than £2,003,157 towards the relief of the City's rates, the Committee feels that the citizens of Birmingham can look with pride upon their gas undertaking and hope that under the new management its prosperity will be unabated and its service to the community maintained.

The report covers the period ended Mar. 31, 1949. The Gas (Transitional) Committee states that in respect of the remaining period before vesting day, *viz.*, the month of April, the activities of the Gas Department were on a scale comparable with those of the preceding twelve months.

In adopting the report the City Council placed on record its appreciation of the public services rendered by all those members of the Council associated with the management of the undertaking during its long history and of the loyal and faithful services given by its employees throughout the years.

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## A GOODWILL MISSION

Following the visit to London of Mr. F. J. Fischer, Director of 'Usogaz,' Switzerland, during which he discussed with the Organising Secretary of the Women's Gas Council the possibility of work of a similar nature to be set up for women in Switzerland, Mrs. Mary Buchanan, the Organising Secretary, was invited to Zurich. M. Ferlet, Director-General of the French gas industry, equally interested in the work of the Women's Gas Council and impressed by the value of its methods of indirect publicity for the industry, invited Mrs. Buchanan to Paris for similar discussions. A visit to Switzerland, returning via Paris, was therefore arranged.

In Switzerland, Mrs. Buchanan addressed a meeting of editors of Swiss national papers and was, in addition, invited to broadcast from Zurich, and to contribute an article to a Swiss paper. Invitations have now been received from both the Swiss and the French gas industries for a group of 50 to 100 representatives of the Women's Gas Council to visit them next year on a goodwill mission in which, besides visiting the gas industry of both countries, special arrangements are being made for the delegates to meet Swiss housewives in their own homes. There are at present on display in the Women's Gas Council offices at Gas Industry House, in addition to the literature received regularly from Switzerland, several coloured posters produced by the French gas industry.

# A SURVEY OF FUEL EDUCATION AND RESEARCH*

By D. T. A. TOWNEND, D.Sc., Ph.D., D.I.C., Hon. M.Inst.Gas E.

IN the past few years the progress of the Institute of Fuel has been rapid, leading first—by bestowal on the Institute of its Royal Charter—to the recognition of the important part which fuel technology as a profession must continue to play in our national life; secondly, to the establishment of our Headquarters at 18, Devonshire Street; and, thirdly, to the development of our finances on an adequate and sound structure. Following this rapid expansion, we are now in a period of consolidation, and must ensure that we do not fall short in meeting the great responsibilities imposed upon us. I must at once pay tribute to the great help I have received from Past Presidents, Vice-Presidents, Honorary Officers, Members of Council, Chairmen and members of Committees, and our Secretary; their services have been invaluable. I must mention also the work of Section Chairmen, Officers and Committees, without which the family life of our Institute could not be as healthy as we find it today.

You will wish me, I know, to express the regret we all feel that my immediate predecessor, Professor C. H. Lander, is unhappily no longer with us. We owe a special debt to him for he had been Chairman of our Education Committee since its formation in 1943, and had laid the sound foundations on which we must continue to build in this important field within the Institute's activities.

The Institute has also suffered other serious losses by the passing of Mr. W. M. Selvey, our President from 1941 to 1943 and of Colonel W. A. Bristow, a Vice-President from 1938 to 1946.

## The Education Scheme

In following Professor Lander as Chairman of the Education Committee I have had to relinquish the Chairmanship of the Membership Committee, but I know the duties of that chair will fall into excellent hands since Dr. G. E. Foxwell has accepted election to it. We know that he will most jealously guard our standards of membership in the interest of the Institute and of our profession.

I take my election by Council to the chair of the Education Committee as well as to the Presidency to be recognition of the ruling interests of my life and career, and also of my fellow-workers in education and research. In setting up regulations under the Education Scheme, we have framed professional standards in fuel technology comprising not only the experience but also the educational attainments necessary for corporate membership of the Institute. The provisions now in force cover a contemplated period of five years, ending in 1950, for it is recognised that at that stage, and in the light of experience gained, certain changes will be necessary in order better to define the broad qualifications required; we must also ensure as far as possible that the pursuit of the course of training stipulated is practicable within the available educational structure.

It may be recalled that the present Education Scheme of the Institute was first framed in 1944. The draft scheme and syllabuses were complementary to the proposed new constitution of the Institute, set out in the Petition for a Royal Charter which was being framed for presentation about that time. The accepted definition of a professional fuel technologist was 'a qualified engineer or chemist who has further specialised in fuel'; and no matter how the educational requirements set out in the Institute's Scheme published late in 1945 may be changed in detail, it is clear that the requirement for corporate membership must include basic training in mathematics, chemistry, physics, and mechanical drawing, followed by further background knowledge of physics and chemistry applied to fuel technology with subsequent special reference to, and the requisite experience within, one of the fuel industries. These are special professional requirements, but it is also clear that they must be coupled with a good standard of general education. As pointed out by Professor Lander, our young men now entering industry need to be equipped to a much higher degree than formerly to deal with matters of general fuel technology as well as with the particular specialisation of the industry they enter. We have to contrive, in effect, a course of education and training leading to a double-barrelled qualification . . . . the course of education and training must provide intrinsic values, fitting those who follow it not just for passing examinations, but for tackling with success the practical problems they will have to face.

Here I must mention the importance which the Institute attaches to its student members and it is particularly pleasing to record the increase in their numbers, especially those nominated by Collective Members. A panel of the Education Committee is being set up to advise students on their best means to qualify ultimately for corporate membership, having in mind the individual circumstances of their occupation and the educational facilities in their area.

It is pleasing that a large proportion of the entrants as corporate members to the Institute are already graduates, with qualifications carrying exemption from the Institute's examinations; many of them are also members of other professional bodies. Among these graduates a proportion have received their training in university departments catering specially for one branch or another of fuel technology.

## The Livesey Chair

Fuel technology, as a university subject, was established in Europe earlier than in the United States of America. The first British training ground was probably the famous combustion school which grew up under Dixon at the University of Manchester. Thence came such workers as Bone and Wheeler; Bone passed to the University of Leeds, where Smithells had already established an association with the gas industry. In 1910 Bone was appointed to the Livesey Chair of Coal Gas and Fuel Industries, established in that year at Leeds to perpetuate the memory of that great gas engineer of the South Metropolitan Gas Company, Sir George Livesey. In 1912 Bone came to the Imperial College, London, where a Department was established with rather broader fields but with fuel technology as its background; Sir Alfred Egerton succeeded as Head of this Department in 1936. As one of Bone's pupils, I myself followed Cobb, who had succeeded Bone at Leeds; and when in 1936, the University of Birmingham established Coal Utilisation as a degree subject within its Mining Department, Stacey Ward, another of Bone's pupils, was appointed to take charge. At Birmingham, the Department of Oil Technology is now combined with that of Coal Utilisation in an omnibus structure under F. H. Garner embracing the entire field of chemical engineering. In 1920 Wheeler was appointed to a new Chair of Fuel Technology in the University of Sheffield, and it is particularly pleasing to members of this Institute that R. J. Sarjant, one of our present Vice-Presidents, succeeded to this Chair some two years ago, and is now rapidly expanding the activities coming within its purview. Many leading fuel technologists in this country have received their training in one or other of these schools; and although we now see that such schools could have been strengthened with advantage to the nation, we must be grateful to the pioneering Manchester school which flourished at the turn of the century.

## Work of the Technical Colleges

We are also fortunate in having strong training grounds in technical colleges affiliated with some of our universities, notably at Manchester, Glasgow and Edinburgh, and we note with pleasure that University College, Nottingham, which is now also providing training in fuel technology, has recently received new status as the University of Nottingham.

All this said, those of us who have immediate contact with students wishing to qualify for membership of the Institute realise the inadequacy of the facilities available for those who are already occupied in industry. None the less we are gratified by the efforts now being made to provide appropriate facilities in technical colleges with the full support of the Ministry of Education. In this connection I must express the appreciation of the Institute to the City and Guilds Institute for conducting the examinations concerned with our Education Scheme.

Incidentally, a review of the serious position which had arisen during the war period owing to the shortage of fuel technologists was made in 1942 by the D.S.I.R. Sibly Committee, the outcome being the award of a number of bursaries to postgraduate students for intensive training in order to meet the need. Re-reading the Sibly Report brings out clearly the general progress which has been made since that time. We in the Institute must ensure that there is no falling-off in the rate of progress during the years to come.

## Non-Corporate Members

As well as to its corporate membership the Institute attaches great importance to non-corporate members, whether Collective Members and their Representatives, or Associates. There is a gratifying continued increase in membership in both categories.

* Presidential Address delivered at the Twenty-Second Annual Corporate Meeting of the Institute of Fuel, April 28, 1949.]

Regarding the former, we believe that it is most important to bring within the Institute's framework industrial organisations which are major users of fuel. Through their representatives, these organisations can participate actively in the advancement of fuel technology. We welcome in similar manner the Associates, whose qualifications are not specifically those in fuel technology stipulated for corporate membership, but who either occupy responsible positions in which they are actively interested in the promotion of the science or practice of fuel technology, or who, by their connection with science or the arts, are qualified to concur with the members of the Institute in the advancement of fuel technology. We have such a wide range of interests and we touch the working life of the country at so many points that we need the co-operation of non-corporate as well as of corporate members, if only to keep our work as an Institute on a broad base and our feet firmly planted on the ground.

With these different classes of membership, the Institute is well founded. Its meetings provide a forum where the industrialist and the scientist can educate each other. It is necessary also for one kind of scientist to educate another kind—and this is nowhere better exemplified than in fuel technology.

## Research

There used to be in currency, any many of you will remember, a rather ribald set of verses describing the characteristics of the chemical engineer, I make no apology for borrowing from the chemical engineer in this reference, since he is surely the type of engineer who, above all others, may well find himself specialising in fuel technology because of the particular interests of his profession in the *fuel-processing*—if we may for a moment distinguish them from the *fuel-using*—industries; and it is not strange, therefore, that he finds himself with numbers of his brethren in the Institute of Fuel, where he compares notes with mechanical, electrical, and other engineers, as well as with chemists of a variety of specialisation apart from their fuel interests. The ribald rhyme to which I refer alleged of chemical engineers that 'they have a heathen idol whom they designate "research".'

A Presidential Address may on occasion very fittingly be in Newman's celebrated description, as far as the President is concerned, his *apologia pro vita sua*. I use the phrase carefully in Newman's sense, presenting not an apology, but an attempt at an explanation, an exposition of my working life in which I wish to show you that research in its inception and in the form and substance of its modern development is by no means just a 'heathen idol,' but a logical concept well justified by its aims and results.

Since my interests and work have been in education, as a preparation for both industrial and research activities, and also in research itself, it is natural that I should now make special reference to the research field. Bone, my tutor, whose interests were wide, was a great enthusiast in the quest for fundamental knowledge for its own sake; he was also enthusiastic in applying fundamental knowledge to industrial practice and in going back to original sources for scientific information, too often discounted as academic, in the solution of industrial problems. To my mind there is nothing mutually exclusive between fundamental and industrial or applied research. Each requires the training and experience which give a similar mental approach and the same basic method.

## Research-Minded Workers

Too often this is taken to mean that research is the privilege and prerogative of a worker in a university; but what is really important is that a man should be *research-minded*. Even an operator, if he is research-minded, can do research wherever he may be. None the less, it will be recognised that university work does provide freedom for adventure-after-knowledge for its own sake; for although it is a matter of historical fact that much pure scientific work has provided the basis on which have ultimately been raised tremendous commercial developments, yet it is not by this criterion that immediate judgment is passed in the field of university research work itself.

After leaving the Imperial College in 1938 it was my good fortune at Leeds to gain experience of working in a university department while being at the same time in immediate contact with industrial problems. The demands of industrial applied research are more arduous and exacting than those of free-lance research, but none the less their pursuit is a high privilege; for there is great satisfaction in seeing one's labours come to fruition in service to society. And at no time was there a greater call than today for scientists to work in close touch with industry, and in no field is the need more imperative than in fuel. Our fuel resources, which are our major interest, are nationally, next to the land itself, our most important material asset. Indeed, the development of our coal resources was a major factor in establishing the world leadership which we achieved industrially; and the fact that we must continue to import a large proportion of our food, gives fuel conservation continued importance. It is most pleasing, therefore that among its members the Institute can count a rapidly increasing body of young scientists whose objective is service to their generation in the field of fuel technology.

We are witnessing progressive changes in the prosecution of scientific work and its application to industry. Here it is interesting to note recent revivals of the controversy on the relative merits in education—having in mind the present position of the nation—of the classical as opposed to the commercial or scientific approach; fortunately we hear some wisely advocate the correct blend. It is often overlooked that we have our 'classics' in science, as well as in the humanities—applying the word in what I suggest is its correct sense, namely to something which not merely in form but also in substance is fundamental and worthy of survival. I suggest that in advocating the classical basis alone we may often think too much of form and too little of substance.

Until the turn of the century, scientific men were individualists, often giants or even despots. They frequently treasured their theories as unassailable and the meetings of some professional bodies sometimes became battle grounds. Then the sciences were less demarcated. One recalls, for example, on turning over the pages of, say, the *Comtes Rendus* of the 80's and 90's, the wide range of subjects in which an individual savant submitted contributions. Moreover, the scientist then frequently knew both 'how' and 'why.'

Today the growth of science is such that although the width of knowledge demanded of him who would serve industry must not be cramped or canalised, yet it is almost beyond the scope of the individual to be expert in more than a comparatively limited field. In fact, today it is rare to find a man who knows both 'how' things happen as well as 'why.' And the great output of scientific literature is forcing the division between the scientists ever wider.

## Specialisation in Fuel

To return to our particular interest as an Institute, we note that fuel technology is a specialisation of a particular kind. Research in this field is much more difficult that formerly, for team work has become a logical necessity if so many members of the family of scientific men are to make their contribution to fuel technology. This team work demands of the individual that he should view the field, not merely as a specialist, but also as, to use an old but expressive term, a 'natural philosopher.'

In the time remaining at my disposal, I should like, therefore, to give a brief outline of progress in one or two directions of fuel technology and indicate how this is being achieved by team work. Here I have drawn on the experience of my colleagues within the British Coal Utilisation Research Association.

## Team Work in Research

Many millions of tons of coal are burned annually in boilers to give heat, power, and process steam. Research on boilers is aimed at reducing the amount of fuel required for these various industrial purposes in existing plant, and at the development of new designs, and at increasing availability. The first of these is specifically the problem of the shell boiler, the second includes possible new prime movers such as the gas turbine and the third is of particular importance with water-tube boilers. In all cases limitations of capital cost must be borne in mind. Recently Grumell* emphasised the importance of this work in saying: 'While investigations of this nature are not so spectacular as research on atomic energy or gas turbines, they are vitally important. Moreover, they will probably return a higher dividend, in terms of fuel saving, more quickly than even more ambitious projects, and should therefore receive the fullest encouragement.'

At first sight, boiler research is uninspiring. But this is only a reflection of the limited view which any specialist technician has of a boiler and its operation. For the operating engineer a boiler must be reliable, involve little trouble in maintenance, and be sufficiently flexible to meet changes in the fuel supplied and the load demanded. For the research engineer, the boiler is a unit for mixing together quantities of fuel and air and leading away the useful, and the useless, products of the combustion; for him the method and materials of construction, together with the efficiency with which the chemical energy of the fuel is transferred into heat, are all-important. The physicist sees more subtle problems such as the effect of temperature in, and the structure of, the fuel bed and the importance of the relative balance of convective and radiant heat transfer to the water-heating surfaces. Each of these scientists is dependent on the analytical chemist to characterise his fuels and to specify the quality of the waste gas.

(*To be continued*)

* *Fuel*, 1949, **28**, 67.

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**The Telephone Number** for all departments of the Gas Council at 1, Grosvenor Place will in future be SLOane 4554. Users of the Gas Board Personnel Supplement to the *Gas Journal Calendar and Directory* are asked to make a note of this alteration on page 3 of the Supplement.

# THE MALTA AND MEDITERRANEAN GAS COMPANY, LIMITED

THE Annual General Meeting of the proprietors of the Malta and Mediterranean Gas Company, Ltd., was held at the offices, 5, Great Winchester Street, Old Broad Street, London. E.C.2, on Friday, July 29, 1949. Mr. Arthur M. Paddon, M.I.C.E., Chairman of the Company, presided.

After the Chairman had declared a quorum present and the notice convening the meeting and the Auditors' report had been read, the CHAIRMAN said: When it is considered that the accounts before you are based upon a period of what I may call 'protracted recovery' from the general conditions of war, both technical and financial—if that is kept in view—I think the results may be held to be satisfactory.

At a period like this, when the Company has reconstituted itself after the disturbances which war makes necessary, a comparison is rendered quite valueless because you cannot preserve the same ratio, the same comparison with previous accounts, because of the irregular and sporadic charges of quite a big character, but many of the charges which have hitherto burdened us have been met and we have a rather clearer financial prospect, if I may say so, at the moment than we have hitherto had, and there is no reason for any apprehension as to the capacity of the Company to meet all that it can see definitely before it in the way of expenditure.

The carry forward has been increased by £300, and when we come to the balance sheet there are many reassuring factors, traditionally so I may say. You will see that the issued capital of the Company is £44,310, and even the investments, without regard to other assets and so forth, are equal to meeting that amount because although they have a book value of some £35,000 they have a market value at the date of the account of £53,000, exceeding the issued capital of the Company by some £7,000. Every possible provision has been made in regard to reserves to meet whatever is before us, so that we have a reasonable expectancy that the next accounts will be such as will meet all the requirements both in regard to the distribution of dividend and for the security and stability of the undertaking.

What I think will concern you most, as it does your Directors, is the future of the Company, because the tenure of our undertaking in Malta comes to a conclusion actually under the terms in which it was granted, in 1952. I assure you that for quite the last ten years, I may say, this subject has always been uppermost in the minds of the Directors. I have reviewed it from time to time in the light of the constant change of circumstances, one of which is that the Government of Malta is now independent—it was not before; it still remains a Colony but it has not the characteristics it had before that change was made.

With regard to the legal position of the Company, that has been most closely considered, but you must realise that it is complicated by the fact that our business is in Malta and our Company is in London and we have got two legal set-ups to consider, and we do consider them very carefully indeed. You will not expect me to make any definite pronouncement on the matter because it would be not only premature but very ill-advised. What I can tell you is we are taking every possible step to ensure the position of the Company and that, gentlemen, is all I can tell you at the moment.

The report and accounts were approved and adopted, the dividend declared, and the retiring Director, Mr. Arthur M. Paddon, re-elected.

Votes of thanks to the Directors and the staff in London and Malta were passed and the proceedings then terminated.

# CAPITAL LOSS OF 10 PER CENT. ON GAS VALUES

The seventh list of take-over prices of unvalued gas stocks, issued on Aug. 8, covers 86 securities of 23 different companies. Its publication coincided with a further depreciation in the price of 3% British Gas stock, which now stands at £90½. This means that almost every successful claim made by an undertaking for additional compensation to cover loss of revenue from war causes is entirely nullified. The new list, as shown below, brings the total of stocks now dealt with to 640, representing approximately one-third of the 1,800 stocks covered by the Gas Act and approaching two-thirds of the total estimated compensation value of £200 mill.

| COMPANY | COMPENSATION VALUE |
|---|---|
| Ascot, 5% Perp. Deb. | £125 |
| Do., 4½% Perp. Deb. | £112/10/– |
| Do., 4% Perp. Deb. | £103 |
| Do., 3½% Red. Deb. | £100 |
| Do., 5% Pref. | £118 |
| Do., Ord. | £137 |
| Burgess Hill and St. John's Common, 3½% Red. Deb. (since Dec. 31, 1945) | £105/10/–* |
| Elland-cum-Greetland, 4% Consol Pref. | £101/10/– |
| Do., New Ord. | £111/5/– |
| Do., Conv. Ord. | £140 |
| Finedon, Orig. (£5 unit) | £9/19/– |
| Do., Addl. (£5 unit) | £6/19/– |
| Great Wigston, 10% Stand. Ord. | £210 |
| Do., 7% Stand. Ord. | £150 |
| Do., 6% Stand. Ord. | £132 |
| Great Yarmouth, 5½% Deb. | £134 |
| Do., 4% Deb. | £101/15/– |
| Do., Ord. (£30 unit) | £51 |
| Do., Ord. (£7 10s. unit) | £12/15/– |
| Do., New Ord. (£30 unit) | £45 |
| Do., New Ord. (£10 unit) | £14 |
| Hornsea, Ord. (£2 10s. unit) | £4/2/6 |
| Hornsey, 4% Perp. Deb. | £103 |
| Do. 3½% Reb. Deb. | £101/15/– |
| Do., 5% Pref.‡ | £115 |
| Do., 5% Stand. Ord.‡ | £149 |
| Do., 3½% Stand. Ord.‡ | £115/10/– |
| Kettering, 4% (Tax Free) Deb. | £145 |
| Do., 4% Deb. | £102 |
| Do., Consol. Ord. | £156 |
| Lea Bridge, 5% Perp. Deb. | £125 |
| Do., 4% Perp. Deb. | £103 |
| Do., 5½% Red. Deb. | £114/10/– |
| Do., 4% Red. Deb. | £101/10/– |
| Do., 6% Pref. | £134 |
| Do., 5% Pref. | £115 |
| Do., 4% Pref. | £103 |
| Do., Consol. Ord. | £160 |
| Lutterworth, Ord. (£20 unit) | £37 |
| Do., Ord. (£10 unit) | £18/10/– |
| Do., Ord. (£8 unit) | £14/16/– |
| Do., Ord. (£1 unit) | 37/– |
| Morley, 4½% Pref. | £110 |
| Do., 5% Red. Pref. | £105/15/– |
| Do., Consol. Ord. | £115 |
| North Middlesex, 5% Perp. Deb. | £125 |
| Do., 4% Perp. Deb. | £103 |
| Do., 6% Pref. | £134 |
| Do., 5% Pref. | £115 |
| Do., 4% Red. Pref. | £100/10/– |
| Do., Stand. Consol. | £155 |
| Oxford, 4% Red. Pref., 1970 | £103/10/9*† |
| Pickering, Ord. (£10 unit) | £22 |
| Rochester, Chatham and Gillingham, 4% Irred. Deb. | £103 |
| Do., 5% Red. Deb. | £108 |
| Do., 5½% Irred. Pref. | £130 |
| Do., Consol. Ord. | £155 |
| Royston and Brodsworth, 4% Red. Deb. | £101/15/– |
| Do., 6% Pref. | £133 |
| Do., Ord. | £130 |
| Rushden, 7% Deb. | £155 |
| Do., 5% Red. Pref. | £112 |
| Do., Orig. Ord. | £264 |
| Do., Addl. Ord. | £185 |
| Do., 'A' | £100 |
| Slough, 5% Perp. Deb. | £125 |
| Do., 4% Perp. Deb. | £103 |
| Do., 4% Red. Deb. | £101 |
| Do., 5% Pref. | £115 |
| Do., 4% Red. Pref. | £100/10/– |
| Do., Ord. | £163 |
| Uxbridge, Maidenhead, Wycombe, 4½% Perp. Deb. | £114 |
| Do., 4% Perp. Deb. | £103 |
| Do., 5½% Pref. | £128 |
| Do., 5% Pref. | £116 |
| Do., 4% Red. Pref. | £100/10/– |
| Do., Consol. | £147 |
| Wakefield, 4½% Pref. | £110 |
| Do., 5% Max. | £111/5/– |
| Do., Ord. | £120 |
| West Yorkshire Gas Distribution, 4½% Red. Deb. | £105/10/– |
| Do., 4% Red. Deb. | £103/10/– |
| Do., 4½% Red. Pref. | £106 |
| Whitby, Orig. (£10 unit) | £11/16/– |
| Do., Addl. (£10 unit) | £8/8/– |
| Do., New Addl. (£10 unit) | £8/8/– |

* The value of these securities has been determined by reference to the price of issue in accordance with Section 25 (5) or 25 (6) of the Act, as the case may be. In addition, in certain cases the note immediately following applies.

† More than one value applies to securities of this class, by reference to Section 25 (7) of the Act. The average value in accordance with Section 25 (7) (*b*) is shown, and is applicable except where the issue price (Section 25 (7) (*a*)) determines the compensation value.

‡ The value of these unquoted securities has been determined in accordance with Sections 25 (10) and 26 (4) of the Act.

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The Proceedings of the Chemical Engineering Group for 1946, just to hand, runs to 110 pages, and contains within its familiar blue cover many papers of interest and customary high standard. It is available from the Group at 56, Victoria Street, London, S.W.1, price 21s.

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Requests from schools for a more elementary course on gas in the home have resulted in a new folder titled 'School Course on the Use of Gas for Domestic Purposes,' and published by the Women's Gas Council. The syllabus covers 10 to 12 lessons, and includes such subjects as the gas meter, refrigerator, cooker, hot water in the home, and laundry appliances. It is intended that the lessons should be supplemented by visits to the gasworks or gas showrooms. A further copy of the 'Syllabus of Gas Training for Students of Housecraft' has also been issued by the Women's Gas Council. The course has not been altered, but the leaflet now includes the examination regulations. Both publications can be obtained from Gas Industry House.

# TRADE NEWS

**S. Wolf and Co., Ltd.,** announce that the name of the firm has now been changed to Wolf Electrical Tools, Ltd.

* * *

Owing to greatly increased business **Bright Son & Company** have opened a new factory for the repair of public lighting controllers at 20, Northburg Street, Great Sutton Street, E.C.1 (telephone Clerkenwell 7171). This factory is furnished with the most modern equipment. The head office is still at 1, Rydon Street, New North Road, N.1 (telephone Canonbury 5111).

* * *

Details of the Beaumont drag scraper system, published by **International Combustion, Ltd.,** 19, Woburn Place, London, W.C.1, in a 20-page booklet, will be of interest to gas engineers seeking increased efficiency at the works. The manufacturers state that the cheapness of the machine, its freedom from costly delays and breakdowns, ease of operation, and extreme flexibility in meeting plant and site conditions have already made it a popular adjunct to successful plant operation. The booklet includes a description and photographs of some of the machine's applications, a table of capacities, and features of drag scraper winches and the system of remote electro-mechanical control.

* * *

To meet the need for a hydraulically operated shovel, **W. E. Bray & Co., Ltd.,** have produced a ¾ cu. yd. capacity hydraulically controlled loading shovel, details of which are given in a leaflet available from the manufacturers at St. John's Road, Isleworth, Middlesex. An outstanding feature of the 'Hydraloader' is the crowding action given to the bucket by a secondary boom, which enables a full bucket of free-flowing material to be carried in exceptionally low headroom without spillage. Raising and lowering of the bucket is controlled by a fingertip hydraulic valve, and two lowering speeds are available, one which enables the bucket to drop slowly, the other enabling the operator to accelerate the speed of fall. The unit is designed exclusively for operation with the Fordson Major Industrial Power Unit, and so arranged that the operator has an unobstructed view of the loading and discharge operations.

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**Sigmund Pumps, Ltd.,** Terminal House, 52, Grosvenor Gardens, London, S.W.1, have released details of their installation of over 250 centrifugal refinery pumps at the new plant at Stanlow, Cheshire, of the Shell Chemical Manufacturing Co., Ltd., designed for the manufacture of synthetic solvents from petroleum. Maintenance problems were reduced to a minimum by the selection of three basic pump designs —single-stage, two-stage and multi-stage barrel type, and variations of parts were minimised by employing the same internal parts in all three groups. About half the total number of pumps supplied use the same wear rings, shaft sleeves and other wearing parts, and over three-quarters have only two sizes of bearing assemblies in single-stage and two-stage pumps. A further problem of leakage was solved by the use of diffusers which eliminate largely any radial thrust against the shaft and consequent wear of packing and shaft sleeves.

**Metropolitan Gas Meters, Ltd.,** Hyson Green, Nottingham, have a sales and service depôt at Windsor House, Castle Street, Conway, North Wales (telephone Conway 2275). The depôt will be under the control of the Company's Western Representative, Mr. G. F. Kelly.

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The July issue of The Tabulator, the bulletin of the **British Tabulating Machine Co., Ltd.,** 17, Park Lane, London, W.1, contains an article, written prior to the nationalisation of the gas industry, on the punched card method of accounting with Hollerith machines used in the accounting department of the then City of Birmingham Gas Department. The author is Mr. E. P. Wilson, Accountant of the Warwickshire Division, West Midlands Gas Board.

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A rotary crucible furnace is the subject of a new leaflet published by the **Morgan Crucible Co., Ltd.,** Battersea Church Road, London, S.W.11. The furnace is fitted wit ha bottle shaped crucible specially designed for the melting of swarf and metal powders with a minimum of oxidation loss. Advantages claimed are high metal recovery, improved thermal efficiency, even heating of crucible and lining, and the elimination of pokering work.

* * *

From **Warren, Morrison, Ltd.,** we have received a leaflet describing the 'Warren' Straight Through Valve, which, it is claimed, is finding increasing applications in the chemical and food industries. The valve combines the following advantages: A full bore, no pockets, no flow restriction, versatility in handling almost all chemicals, light weight, and visible indication of the position of the valve. The unit consists of two half-body castings which enclose a flexible synthetic rubber moulding of specially durable material. The action comprises the closure of the moulding by squeezing between two anvils when the valve spindle is screwed down. A range of four natural and synthetic rubber mouldings, interchangeable in the same valve body, can be supplied for use with chemicals which have previously required ebonite, glass, and lead lined valves. The leaflet can be obtained from the makers at 4-6, Palace Street, London, S.W.1.

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We have received from **James Howden and Co., Ltd.,** 195, Scotland Street, Glasgow, C.5, a booklet on the Howden-Lysholm Compressor, a new lobe-type machine which, it is claimed, brings to the high speed rotary machine field a compressor which has the stability of aerodynamic performance normally associated with reciprocating compressors and, over a certain volume range, gives efficiencies comparable with the highest obtained with other types. It possesses an advantage over the reciprocating type by virtue of its smaller space requirements. In addition to a full account of the Lysholm compressor, which includes its mechanical design, production, and performance, there is an interesting review of the fundamentals and present position of contemporary compressor types. The publication, which is excellently illustrated with diagrams of typical characteristics, and photographs of the machine parts, can be obtained from the Company's Compressor Division.

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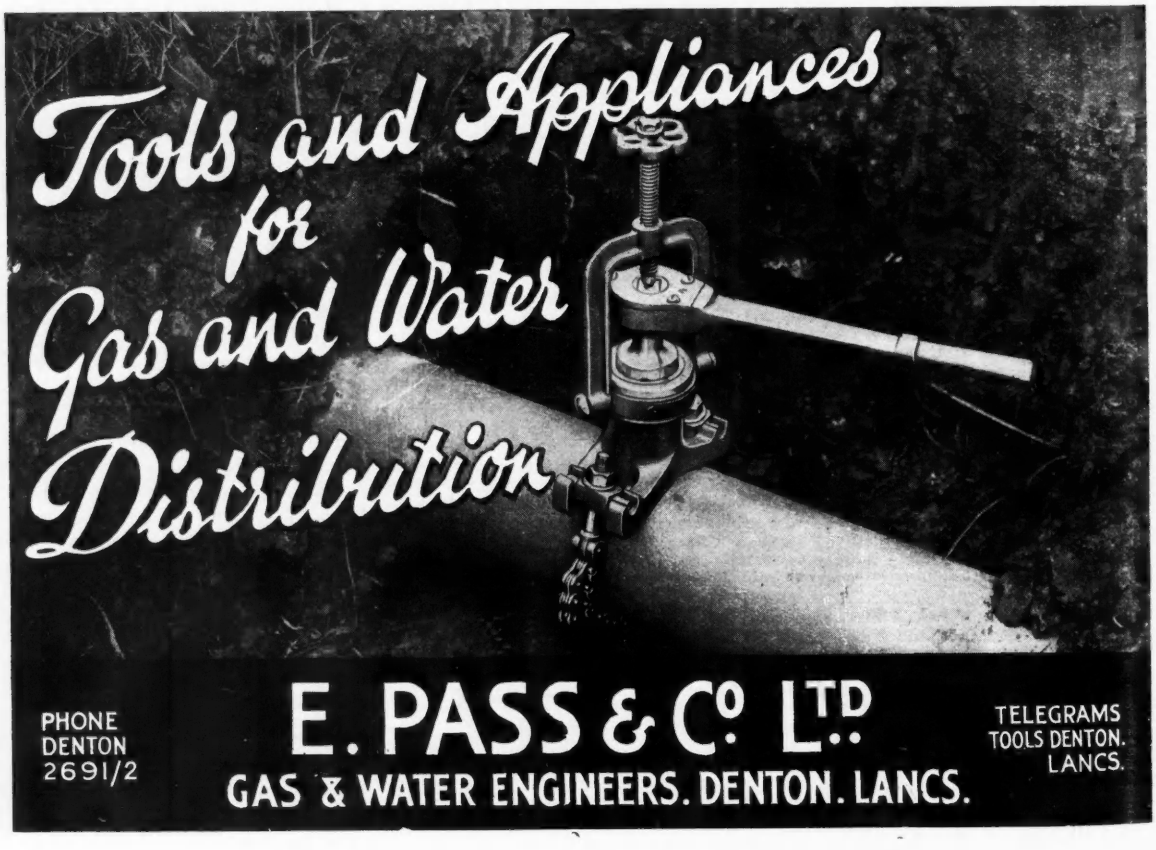
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